

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 – 2. (Canceled)

3. (Currently Amended): An NC machine tool ~~as set forth in claim 2~~ having a spindle run-out diagnosing function, the NC machine tool having a spindle for rotating a tool held thereby and adapted to numerically control a relative movement between the spindle and a workpiece, the NC machine tool comprising:

deflection detecting means provided on a base within a machining area for detecting a deflection of an outer circumferential surface of a test tool attached to the spindle when the test tool is rotated about an axis thereof; and

run-out diagnosing means for conducting a diagnosis on run-out of the spindle by calculating an amount of the run-out of the spindle on the basis of the deflection detected by the deflection detecting means and comparing the calculated run-out amount with a predetermined tolerance,

~~wherein the non-contact type deflection detecting sensor of the deflection detecting means includes~~ the deflection detecting means comprises a main body having an insertion hole for receiving the test tool, and at least two non-contact type deflection detecting sensors disposed with fixed to the main body with a detecting portion thereof

projecting in the insertion hole and deflection detecting directions thereof being perpendicular to each other,

wherein the main body is fixed to the base, and the deflection of the test tool is detected by the non-contact type deflection detecting sensor with the test tool inserted in the insertion hole of the main body.

4.(Currently Amended): An NC machine tool ~~as set forth in claim 2~~ having a spindle run-out diagnosing function, the NC machine tool having a spindle for rotating a tool held thereby and adapted to numerically control a relative movement between the spindle and a workpiece, the NC machine tool comprising:

deflection detecting means provided on a base within a machining area for detecting a deflection of an outer circumferential surface of a test tool attached to the spindle when the test tool is rotated about an axis thereof; and

run-out diagnosing means for conducting a diagnosis on run-out of the spindle by calculating an amount of the run-out of the spindle on the basis of the deflection detected by the deflection detecting means and comparing the calculated run-out amount with a predetermined tolerance,

~~wherein the non-contact type deflection detecting sensor of the deflection detecting means includes~~ the deflection detecting means comprises a main body having an insertion hole for receiving the test tool, and ~~two pairs of non-contact type deflection detecting sensors disposed fixed in a diametrically opposite relation with to the main body with a detecting portion thereof projecting in the insertion hole and~~ deflection detecting directions of one pair of non-contact type deflection detecting sensors being

perpendicular to deflection detecting directions of the other pair of non-contact type deflection detecting sensors,

wherein the main body is fixed to the base, and the deflection of the test tool is detected by the non-contact type deflection detecting sensor with the test tool inserted in the insertion hole of the main body.

5. (Currently Amended): An NC machine tool as set forth in any of claims 1 to 3 or 4, wherein the run-out diagnosing means conducts a diagnosis on a static run-out observed when the spindle is rotated at a lower rotation speed and on a dynamic run-out observed when the spindle is rotated at a higher rotation speed.